

AST 598 – Astronomical Instrumentation and Data Analysis

Homework Set #1

Due 5pm, Mon Sep 11th, 2006

Please leave in the Instructor's mailbox on the F-wing 6th floor

Questions should be addressed to the Instructor via email to paul.scowen@asu.edu or during Office Hours (see website for these)

[AT, pp 102-103]

- (1) 1.1.1
- (2) 1.1.2
- (3) 1.1.4
- (4) 1.1.5

(5) List the principal advantage of each of these telescope systems:

- (a) Prime Focus
- (b) Cassegrain
- (c) Gregorian
- (d) Dall-Kirkham
- (e) Ritchey-Chrétien

(6) Consider a diffraction limited telescope of 2.4m diameter. What would be the angular diameter of the core of the images within the first dark ring for wavelengths of 0.5 and 0.2 microns? How many pixels would fit across these diameters if the linear pixel size is 15 microns and the focal ratio is $f/12.9$? $f/30$?

(7) Explain the advantages and disadvantages of working at the Nasmyth focus of an Alt-Az telescope as compared with working at the Cassegrain focus of the same telescope mounted Equatorially?